

ENVIRONMENTAL  
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REPORT



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# FROM THE PRESIDENT & CEO

Santee Cooper **MARCHED FORWARD** ON A HOST OF ENVIRONMENTAL EFFORTS IN 2009, FROM INITIATIVES AFFECTING THE SANTEE COOPER LAKES TO OUR OWN CORPORATE RECYCLING PROGRAM THAT EARNED US A STATE AWARD. WE ALSO MOVED THE NEEDLE IN OUR PRIORITY AREAS OF CONSERVATION AND RENEWABLE ENERGY.

There are two ways for an electric utility to meet consumer demand for “green” power: by generating renewable and emissions-free electricity, and by helping customers demand less power as they become more energy efficient.

In terms of generating Green Power, Santee Cooper doubled capacity at one landfill gas generating station and began constructing another station (our fifth). We built two 20-kilowatt solar arrays, one generating power for the Center for Hydrogen Research and the second, which we dedicated in February 2010, generating power delivered to customers via the Palmetto Electric Cooperative distribution system. We continued our research into offshore wind energy, analyzing data from our

weather buoys extending several miles offshore in Horry and Georgetown counties.

Cost remains a significant consideration every time Santee Cooper evaluates a potential source of renewable generation. Every project we undertake to help power our customers’ lives strikes a balance between reliability, cost and environmental stewardship.

Energy efficiency is easy with the right tools — and Santee Cooper announced a major new toolkit in the fall of 2009 that, when fully stocked, will help customers save 209 million kilowatt-hours a year by 2020.



Reduce the Use South Carolina is that toolkit.

We have introduced several Reduce the Use tools already, including a successful refrigerator rebate program that helps customers buy ENERGY STAR® refrigerators and rewards those who also recycle their older, inefficient refrigerators. Smart Energy Homes is also rebate-focused, with the financial incentive designed to help customers step up the energy efficiency of their home improvements and help builders construct energy efficient homes from the outset.

Energy efficiency can be as easy as changing a light bulb, and so Santee Cooper continues to promote the mighty CFL (compact fluorescent light) bulb. It packs a mighty efficient load onto its small, swirly frame.

Santee Cooper is committed to doing our job in delivering reliable, affordable and low-cost power and water, and to helping you do use less electricity.

Visit [www.ReduceTheUse.com](http://www.ReduceTheUse.com) to learn more about how you can become more energy efficient, and how your state-owned utility can help. Read more in these pages about how energy efficiency and renewables fit into Santee Cooper’s comprehensive approach to environmental stewardship.

A handwritten signature in black ink, reading "Lonnie N. Carter". The signature is fluid and cursive, with a long, sweeping horizontal line extending from the end of the name.

**LONNIE N. CARTER**  
**PRESIDENT AND CEO**

# Q&A

## WITH MARC TYE

### VICE PRESIDENT OF CONSERVATION & RENEWABLE ENERGY

SANTEE COOPER'S 75TH-ANNIVERSARY YEAR GOT OFF TO A PROMISING START FOR THE DEPARTMENT OF CONSERVATION AND RENEWABLE ENERGY WHEN THE BOARD OF DIRECTORS APPROVED A \$113 MILLION SERIES OF PROGRAMS THAT WILL CONSERVE MORE THAN 209 MILLION KWHS OF ELECTRICITY ANNUALLY BY 2020.

**Q:** How supportive has the board been of your department throughout its first few years, and what has that support meant to you?

**A:** The board's been very, very supportive. They challenge us to do more, to reach farther and act sometimes faster than we'd planned. We think that's a good problem to have. We're getting all the support we could ever hope for, so we're plugging along as fast as we can.

**Q:** *The first half of 2009 seemed characterized by advancements in Santee Cooper's partnerships and research into renewable energy. Prominent among these efforts were the installation of the solar array at the Center for Hydrogen Research in Aiken County and the launch of a collaborative study into the potential for offshore wind in South Carolina.*

**How does Santee Cooper determine what renewable-energy research it will participate in?**



**A:** It's a delicate balance, because you've got to examine the possibilities and the cost.

Wind is a perfect example: We started with the lower-cost projects to determine if sufficient wind is available and where that would be. We placed anemometer towers along the coast, installed buoys offshore, and we've conducted site surveys to determine a potential location for an anemometer tower in the ocean. The next big decision will be whether to put that anemometer tower in the

water. We've spent \$1 million to get us where we are today, and that's a lot of money, but an offshore anemometer tower would cost \$3.5-\$4 million. That would be a significant step for this project and one we'd have to think long and hard about before moving forward.

We have to make sure everything we do is cost effective and helps us achieve our primary responsibilities, to deliver low-cost, reliable and environmentally responsible power and water to our customers.

So, we're looking at wind, and we're also looking at biomass. Right now, biomass seems to be the most cost-effective renewable energy source for South Carolina.

On the solar side, we applied for a grant in 2009 and were awarded it this year to build a solar installation at the beach. It will be our largest solar installation, by far, and also the largest in the state. Our Green Power Solar School installations are 2 kW, our Coastal Carolina array is 16 kW, and the arrays at the Center for Hydrogen Research and the Technical College of the Lowcountry are 20

kW. This new solar station will be over 300 kW.

Solar is several times more expensive than traditional generation. These kinds of projects are possible when we're getting grants and other support to offset costs. But I don't think you'll see us putting up any solar farms in the near future — not until they are more cost effective. The good news is we're seeing these costs continue to drop.

**Q:** What does Santee Cooper hope to accomplish with its support of the Center for Hydrogen Research, its Green Power Solar Schools program and other smaller-scale solar installations?

**A:** They are largely educational opportunities. People can get close to the solar panels, and through onsite instrumentation, they can see how much energy is being produced. The goal is to educate people as to exactly what solar power does and doesn't do: It doesn't generate at night; it doesn't generate in the morning, for the most part; and it doesn't generate in the late afternoon. It helps people understand that solar has a use, but it

is not as broad as some people may expect it to be.

The Center for Hydrogen Research is unique, because a component of that project is to see whether renewable energy can be stored. That would help enhance the intermittency of solar and some other renewable resources.

**Q:** What has Santee Cooper learned about the potential for offshore wind in South Carolina?

**A:** So far, we're still looking for what we need to make a wind project work. We've got to have at least a 35-40 percent capacity factor on the facility. We don't have that close to shore. Whether it's three miles or six miles out, we're not sure. That's what the anemometer tower would tell us.

We have learned that the shelf off the South Carolina coast is shallow, which is good because you won't need deep foundations. But we've also learned it's made up of a bunch of different surfaces, which is why we're doing some of this survey work right now to determine what kind of a



surface we'll have to put a foundation on.

From a transmission perspective, we have looked into where we could bring the power back onshore and what we think it would cost to do that. Another area we need to get into is public opinion, which we will before we get too far ahead of ourselves. It'll be interesting, because we've gotten a lot of support from different areas, but we have not yet filed permit applications, so we don't know the full complexion of attitudes yet. If other wind projects along the East Coast are any indication, we can expect some opposition and a very long permitting process.

**Q:** *In 2009, Santee Cooper also doubled the capacity at its Lee County Landfill Generating Station, began construction on a new landfill station in Georgetown County and took steps toward a sixth station in Berkeley County.*

**What's been the key to the success of Santee Cooper's landfill generation**

**program, and what role does it play in the overall Green Power program?**

**A:** We've found these projects to be mutually beneficial for us and for the landfills we partner with. The landfills get a revenue stream for selling methane gas they literally have to get rid of and would otherwise flare, and we get generation out of it.

From our perspective, the landfill units are cost effective. We know how much it costs to build them, operate and maintain them. We have a good idea of what it costs for these units to produce power, and it's an acceptable cost. From the landfill's perspective, our footprint is very small, and then they get a revenue stream. It's a good proposition for both parties.

Something we have learned, of course, is methane is not methane. It has different qualities, so we have to be precise in deciding what kind of unit to use for each location.

**Q:** *Santee Cooper loaned more than \$4.7 million to customers for energy efficiency and renewable energy projects in 2009. Meanwhile, employees conducted audits internally to improve our own energy efficiency throughout the company.*

**What did these audits reveal?**

**A:** Just like anyone else, we had opportunities for improvement. We have gone through and replaced a lot of lighting. Lighting is a very cost effective solution for us and other commercial-scale customers.

Where we identified old HVAC units, we're replacing them with high-efficiency HVAC units. We're taking our own advice, but we're also under the same kind of budget constraints our customers are facing.

You mentioned the low-interest loans, and we're one of the few utilities in the country who have a low-interest loan program. A lot of people have a

loan program, but it's like a home equity loan or, in some cases, much higher than a home equity loan. Ours varies with the prime rate, but our rate was 1.25 percent all of 2009.

It does spawn a lot of interest in our loan program, and we did have to go back to the Board of Directors twice to increase the limit. That's another good problem to have, because it means customers are improving their energy efficiency.

When people come to us for a low-interest loan, it helps us educate them on the Smart Energy Homes program. Say they want to replace their heat pump. Well, if they make a couple of other improvements too, not only will they get the low-interest loan, but they'll also qualify for rebates.

**Q:** *In April, Santee Cooper saw another first as it supplied Green Power to the Verizon Heritage golf tournament in Hilton Head. With that success, Santee Cooper began offering Green Power to all types of events, large and small.*

**What are your impressions of how these Green Power events have taken off?**

**A:** They seem to be going very well. We had some people after the Verizon tournament approach us — you think about our retail service area at the beach, we have a lot of conventions and events come there. Some of our employees saw the potential to market Green Power events there, so we've really hit the trail to promote this concept, and they have done an excellent job of signing up additional Green Power customers.

In the grand scheme of things, it really doesn't cost that much to become a Green Power event. For some, it's in the tens of dollars. It's not that much, so hopefully it's catching on. It gives us good name recognition, and it is good publicity for these events.

This really began with us looking for ways to expand the sale of Green Power. We market it to our residential and commercial customers, but once you've reached that core group any additional growth is much harder. This is a new market that we've tapped into, and it's been pretty doggone successful.

**Q:** *Reduce the Use was officially launched in September with the Refrigerator Rebate program and the expansion of the CFL distribution program to commercial customers. The Smart Energy Homes program followed in November.*

**Explain how Reduce the Use represented a new approach for Santee Cooper to encourage conservation and energy efficiency.**

**A:** In the past, we had our Good Cents program and other efficiency or demand-side management programs, but we lacked a unified approach. We created Reduce the Use, really, as an umbrella to house all of these new programs and incentives, some of which we launched this year and others which we'll unveil next year and beyond. It gives our customers a centralized place to learn about these programs and a place to come back to as more programs are added. In the past, we didn't really have this á la carte approach. We're giving the customers more opportunities to save than ever.

**Q:** What has been the response to these initial programs?

**A:** We’ve had a very good response on our refrigerator rebate program — well beyond what we anticipated for the first year. Likewise, the Smart Energy Existing Homes has gotten off to a great start. We focus on these programs first because that’s where the biggest savings are. Our Smart Energy Existing Homes program is as effective now as our Good Cents Improved Homes program was at its peak, and I give credit for that to our employees and the loan program. When people come to us for loans, it gives us greater opportunities to upsize the kinds of efficiency upgrades they’re considering because we can educate them about our menu of rebates and incentives.

Our Smart Energy New Homes program is seeing some interest and will take off as new home construction picks back up. We’re working with contractors to get them on board. The process is more rigorous, because you’re dealing with ENERGY STAR and its standards.

**Q:** In closing, what are your impressions of the progress your department made in 2009, and how has that momentum carried over into 2010?

**A:** We’ve put a lot of focus on the efficiency side, because it’s very cost effective for our customers. It’s been an overwhelmingly positive beginning, and we’ve still got a lot of programs to plan and a lot of programs to put out. And once we get there, the growth won’t be linear; it will be exponential. With every program, we’ll get more and more participation, and we’ll see a very sharp increase in the level of savings we are gaining.

On the renewable side, I think our approach will be slow and steady. These are decisions we will not take lightly as we consider adding biomass and wind and expanding solar and landfill generation.

With efficiency, if we see something that isn’t working, we’ll tweak that accordingly. We’ll do whatever we can to get the savings, but they’ll ultimately need to be cost-effective savings.

I see things picking up for Santee Cooper. Our ambition hasn’t changed. We won’t get there by doing it all in one year. We’ll be methodical, and I feel the customer will ultimately benefit from that approach.

# Santee Cooper's ENVIRONMENTAL MANAGEMENT SYSTEM

## SHOWING CONTINUOUS IMPROVEMENT

FOUR YEARS AGO, SANTEE COOPER DESIGNED AND IMPLEMENTED A STRENGTHENED PLAN DETAILING THE UTILITY'S COMMITMENT TO ENVIRONMENTAL PROTECTION.

IT IS THE ENVIRONMENTAL MANAGEMENT SYSTEM, DEVELOPED BY PERSONNEL FROM SANTEE COOPER'S GENERATION, ENVIRONMENTAL MANAGEMENT, TRANSMISSION, DISTRIBUTION, PROPERTY MANAGEMENT, AUDITING AND LEGAL DEPARTMENTS. THE PURPOSE OF EMS POLICIES AND PROCEDURES IS TO:

**Better manage today's complex web of environmental requirements**

**Guide Santee Cooper toward continued improvement in environmental performance**

**Serve as a daily reminder for employees to consider the environmental consequences of their actions.**

After much planning, the EMS was implemented at the Cross, Grainger, Jefferies and Winyah generating stations. Training began in the fall of 2006.

"The EMS built upon Santee Cooper's strong environmental record by helping us improve environmental compliance and performance," said Jay Hudson, manager of Environmental Management and chairman of the corporate EMS committee. "It helps us integrate environmental compliance into business operations and planning decisions."

The new EMS manual calls for a detailed environmental review when there is a significant change at a generating station. Emphasis is also placed on environmental incident reporting for employees, including anonymous reports. Independent audits are routine and conducted as compliance benchmarks.

Three years ago, Santee Cooper earned a good EMS report card from independent auditors ICF International, further evidence that curbing emissions and ramping up recycling are indeed cornerstones of corporate life.

"ICF concluded back then that Santee Cooper substantially met the requirements to develop and implement an EMS," Hudson said. "That was a good beginning and something we built on."



As part of its official environmental policy, Santee Cooper is committed to:

**Compliance with all applicable federal, state and local environmental statutes, regulations, enforceable agreements, and permits, and**

**Continued improvement in environmental performance through:**

**Proactively seeking ways to enhance compliance**

**Promoting conservation and renewable energy initiatives**

**Minimizing environmental risks**

**Promoting pollution prevention**

**Dedicating personnel, equipment, training and materials for the comprehensive EMS.**

In 2009, the EMS was expanded to the remainder of Santee Cooper’s generation department. Plans are to eventually take the program corporate-wide.

“One of the things the EMS is good at,” said EMS Director Brian Holmes, “is improving communication on environmental issues within generation and outside generation, up to and including executive management. It also helps improve our employees’ focus so that they’re thinking about the environmental impact of their actions.”

Said Holmes, “Every other month, Environmental Management sits down with the management

team at each generating station to discuss all things EMS related. These regular meetings include folks from generation technical services, environmental services and air quality.”

Auditing is done annually and Holmes said Santee Cooper’s internal audit department is very thorough, concentrating on areas of air, water and waste and covering all of generation’s environmental programs every four years.

“This approach is effective for two reasons,” said Holmes. “First, it raises everyone’s awareness about environmental issues because we all know we’ll be checked on, and second, the audit report goes to the entire executive management team, which keeps them keenly involved in the EMS.”

Next up: implementation of the Environmental Management Information System software project, a multimillion dollar commitment to enhance compliance and efficiency, Holmes said. Assessment began in 2009 and implementation is scheduled to begin the second half of 2010.





# Santee Cooper Board Approves Energy Efficiency and Demand Response Plan

The Santee Cooper Board of Directors in February approved a series of programs designed to to save more than 209 million kWhs annually by 2020.

Specifically, the board approved Santee Cooper’s plans to:

- **Renew its successful campaign promoting energy-efficient compact fluorescent light bulbs by expanding promotions to commercial customers and continuing offers for residential accounts**
- **Encourage residential and commercial customers to replace older, inefficient refrigerators by offering rebates for ENERGY STAR®-rated models**
- **Help residential customers improve the energy efficiency of existing homes or construct new energy-efficient ones. These initiatives**

**formed the foundation of an unprecedented multiyear campaign known as Reduce the Use South Carolina, which is comprised of 42 energy efficiency initiatives.**

These new initiatives and savings are in addition to Santee Cooper’s existing energy efficiency programs, which include low-interest energy efficiency loans, free in-home energy audits, free online energy audits, commercial thermal energy storage and many other programs.

In February, the board also approved a \$2 million increase to Santee Cooper’s Low-Interest Loan Program, expanding it to \$5.5 million. This increase allows Santee Cooper to continue the popular program, which offers customers an attractive way



AMBITION



to pay for energy efficient improvements, such as installing energy-efficient heat pumps, adding an optimum amount of insulation and installing energy efficiency windows.

Reduce the Use includes additional promotions involving compact fluorescent light bulb distribution to residential and, for the first time, commercial customers. Through the refrigerator rebate program, Santee Cooper customers are eligible for a variety of incentives that promote the use of energy efficient refrigerators. Customers are offered:

- A \$40 rebate toward the purchase of a new ENERGY STAR refrigerator.
- A \$75 rebate when they purchase a new ENERGY STAR refrigerator and recycle their old, energy-hogging refrigerator.
- A \$110 rebate when they purchase a new ENERGY STAR refrigerator and recycle two old working refrigerators.
- A \$35 incentive check for simply turning in an operating but energy inefficient refrigerator.

Two other programs that are helping residential customers ensure that their homes are as efficient as possible are Santee Cooper’s Smart Energy Existing Homes and Smart Energy New Homes programs.

Santee Cooper’s Smart Energy Existing Homes Program uses rebates and low interest loans to entice homeowners to improve the energy efficiency of their homes. Homes can qualify by achieving an energy performance target or installing a number of specific energy efficiency upgrades, each of which can potentially increase comfort while reducing a home’s energy usage.

The Smart Energy New Homes Program offers rebates to builders of new homes that achieve minimum energy efficiency standards. There are two levels of participation available.

Reduce the Use represents a new business model for Santee Cooper: paying rebates to encourage customers to use less electricity. Santee Cooper is serious about energy efficiency and serious about helping our customers save money for the long term.

## Santee Cooper Colors Events Green

When consumers think of “green” and major sporting events or festivals, it’s the color of money that often comes to mind. Now Santee Cooper is promoting its own renewable power that event planners can purchase to make these events environmentally green too.

It’s an initiative that started in late 2008, when Santee Cooper and Palmetto Electric Cooperative partnered with the team planning the 2009 Verizon Heritage Golf Tournament to provide 100 percent of the Verizon Heritage’s electricity needs through Santee Cooper Green Power and Green Power Tags. It was a first for Santee Cooper and for the PGA TOUR, and the first time a major sporting event in South Carolina was fueled by renewable power.

From charging the golf carts to powering message boards, lights and air conditioners, Verizon Heritage offset 136,000 kilowatt-hours of electricity demanded by the seven-day event at Hilton Head’s Harbour Town Golf Links.

Greening the Verizon Heritage was an opportunity that tied directly into Santee Cooper’s environmental stewardship goals. Palmetto Electric co-op and the Verizon Heritage determined how much electricity the tournament would use, and the tournament purchased blocks of renewable Santee Cooper Green Power from Palmetto Electric co-op to offset that electrical demand.

Santee Cooper has generated and sold Green Power since 2001, when it opened the Horry County Landfill Generating Station outside Myrtle Beach; residential customers can purchase blocks of Green Power for \$3 per 100 kWhs, and commercial customers can purchase 200-kWh blocks for \$6, sums that are added to participants’ monthly power bills. Palmetto co-op and the state’s other 19 electric cooperatives also sell Santee Cooper Green Power.

Santee Cooper reinvests all Green Power revenues in new renewable projects, and so customers who purchase Green Power are not only offsetting their own consumption, they are helping expand renewable power across South Carolina.

Pleased with the success of the 2009 event, the Verizon Heritage committed to fueling its 2010 tournament with Green Power, too, and Santee Cooper has helped other events turn green as well.

In 2009, the North Myrtle Beach Mayfest on Main signed on to go green, as did the Murrells Inlet Christmas Tree Lighting. Santee Cooper Green Power also fueled the 2009 Beach Ball

Classic, a premier basketball tournament held in late December at the Myrtle Beach Convention Center.



# IT another example of greener Santee Cooper

It’s difficult to imagine a time when personal computers weren’t ubiquitous in our workplace.

And while many of us have become reliant upon PCs at work and home, they can have quite the

energy appetite. Santee Cooper’s Information Technology knows this better than most and has implemented several corporate-wide measures designed to save energy and money. Through 2009’s third quarter, those efforts saved 467,930 kWhs of electricity.

Computers have become more efficient over the years, but even performing the most basic of

tasks, like sending an e-mail, requires additional machines to accomplish. It adds up, so Santee Cooper is taking a hard look at ways to reduce energy use associated with IT services.

IT focused first on setting all PCs to enter sleep mode after 30 minutes of inactivity. Such a simple measure has the potential to save Santee Cooper \$42,500 annually and keep 650 tons of carbon dioxide out of the atmosphere.

Other steps include purchasing ENERGY STAR-rated computers and accessories, replacing cathode ray tube monitors with more efficient flat-panel models, consolidating servers and replacing old copiers, fax machines and printers with multi-functional machines.







## Green Power Landfill Generation Grows

In July, Santee Cooper completed work that doubled the generating capacity of renewable Green Power at its Lee County Generating Station near Bishopville through the installation of a 5-MW turbine generator.

The \$8 million project increased total capacity at the Lee County Generating Station to 10 MWs, making it Santee Cooper’s largest renewable Green Power station. The Lee County station opened in 2005 with three 1.8-MW engines.

Landfill biogas is the cornerstone of Santee Cooper’s renewable energy program, which began in September 2001 with the dedication of the 3-MW Horry County Landfill Generating Station near Conway. Santee Cooper also operates a 5-MW station at the Richland County Landfill and a 3-MW station at the Anderson Regional Landfill.

Construction began in December 2009 on the 1-MW Georgetown County Landfill Generating

Station. The fifth landfill generating station would bring Santee Cooper’s total Green Power capacity to 22 MWs.

These stations are fueled by methane gas that is naturally produced by decaying garbage in their respective landfills. Methane is a potent greenhouse gas that is 20 times more harmful than carbon dioxide. The U.S. Environmental Protection Agency estimates that every megawatt of power produced through a facility like Santee Cooper’s landfill generating stations is equal to removing almost 8,000 cars from area roads and planting more than 10,000 acres of trees.

## Nothing breezy about offshore wind

Because land-based sources of renewable energy are fairly limited in South Carolina, Santee Cooper has cast a research eye off the coast to begin evaluating offshore wind as an energy source.

No utility in the United States is currently operating an offshore wind farm, although

several are researching projects. There is no regulatory framework in place, and there is much uncertainty as to cost and environmental impacts. Cape Wind, the oldest offshore wind proposal in the country, has not begun construction and only





received its first permit in 2009, nearly a decade after the project was announced.

Hurricanes further complicate the horizon along the Southeastern United States. Wind turbines are not built to withstand strong hurricanes.

Bearing all this in mind, Santee Cooper is continuing to research the viability and affordability of offshore wind energy, with more than \$1 million invested to date. Working with Coastal Carolina University, Clemson University, the South Carolina Energy Office and NC State, we launched weather buoys into the Atlantic Ocean near North Myrtle Beach and Georgetown in 2009 and are continuing to study the wind speed, direction and frequency data those buoys are recording up to 12 miles offshore. Santee Cooper has also contracted with COWI Inc., a leader in offshore wind energy in Europe, for a conceptual proposal and preliminary design and site work for a possible offshore anemometer station. The station would gather wind data at a height comparable to a wind turbine.

Although we have not determined an exact cost, Santee Cooper knows that offshore wind will cost more than traditional generation — probably at least twice as much. As we do with all considerations of renewable generation, we will thoroughly investigate its potential and drawbacks — considering reliability, cost and environmental impacts — and consider our next steps with our customers’ best interests kept top-of-mind.



## Santee Cooper, Center for Hydrogen Research advance hydrogen economy

In May, more than 100 dignitaries from throughout South Carolina gathered at the Center

for Hydrogen Research near Aiken to dedicate a 20-kilowatt solar installation that could help fuel South Carolina’s budding hydrogen economy.

The photovoltaic array is part of a research initiative to advance hydrogen generation from renewable energy sources. Panels capture sunlight on the roof of the Center connected to the Education, Training and Development Laboratory and in a ground-level solar park that provides educational opportunities to school groups and other interested parties.

It is a key research initiative at the growing \$10 million Center for Hydrogen Research (CHR), home to the Savannah River National Laboratory, the International Thermonuclear Reactor hydrogen production office, the University of South Carolina Aiken bio-hydrogen initiative and a Toyota Motor Company project.

Santee Cooper donated \$230,000 to the CHR for the solar installation and an onsite and Internet-based education and research system.

One obstacle to the large-scale use of solar energy is storing the energy for use when the sun isn’t

shining. Hydrogen can be stored and transported, and has therefore emerged as a recognized solution with applications for electrical generation and powering vehicles. Most hydrogen in the U.S. is produced through a process called steam reforming, where hydrogen atoms are separated from carbon atoms in methane. Renewable energy-sourced hydrogen is a fast-growing research and development field across the country.

The photovoltaic array in Aiken converts sunlight into electricity, which then produces hydrogen through electrolyzing water. Hydrogen can be converted back to electricity using fuel cells or can be used to power hydrogen-fueled vehicles.

Santee Cooper’s Green Power program provided funding for the solar-to-hydrogen project.

## Electric vehicles charging ahead

Imagine owning a car that gets between 75 and 100 miles per gallon and can run on the equivalent of \$1 per gallon for gas, a price not seen in the U.S. for over a decade.

Real transportation possibilities like this are taking shape in the slowly evolving electric vehicle movement, in response to concerns over this country’s dependence on foreign oil and the impact of vehicle emissions on the environment. Far beyond science project status, electric vehicles of two basic types have emerged, hybrids and plug-in hybrids, with “pure” electric vehicles using no gasoline in production at a couple of major manufacturers.

James Poch, executive director of the Plug-in Carolina, touts the benefits of electric vehicles through his non-profit organization, which is supported by Santee Cooper and the state’s investor-owned electric utilities.

Santee Cooper and other utilities are supporting the concept of electric vehicles and the education of the marketplace to the efficiencies the vehicles could offer consumers and electric utilities. They are beginning to anticipate the day when electric vehicles sit in many garages across America and to plan for serving the associated electrical demand required to charge the vehicles. Utilities hope to steer as much of that demand to off-peak times



as possible, to lessen the need for building new generation.

The U.S. Department of Energy believes there is adequate off-peak electric capacity to provide enough power for nearly 70 percent of cars on the road today. The idea is that car owners could drive the vehicles during the day and charge them in garages at night, using existing electric capacity

typically available when most customers are sleeping.

“Santee Cooper is committed to doing its part to educate consumers about the benefits of off-peak charging. However, we know that will be easier said than done,” said Marc Tye, vice president of conservation and renewable energy. “Our experience with other time-of-use and renewable

energy incentives has been that a core group of customers will participate, and others will care more about convenience. If their lifestyle dictates daytime charging, it will be difficult to convince them otherwise.”

“This is our concern moving forward,” Tye continued. “Santee Cooper has to supply our customers electricity when they want it, not when we think they should use it. Electric vehicles will add somewhat to our electric load, and we must plan for that even while we are encouraging off-peak charging.”







## Santee Cooper Named Recycler of the Year by S.C. Dept. of Commerce

Santee Cooper was named Recycler of the Year by the S.C. Department of Commerce during award ceremonies held Oct. 30 in Columbia, a testament to our ongoing commitment that is paying environmental dividends corporate-wide.

Investment Recovery expanded Santee Cooper's corporate recycling program in 2009 to include every staffed facility. During fiscal 2009, Santee Cooper recycled over 1.9 billion pounds of paper, cardboard, plastic, aluminum cans, used electric poles, metal, batteries, gypsum and fly ash.

This accomplishment is just another milestone in the state-owned electric and water utility's journey to consciously seek out greener opportunities for its business operations.

To commemorate the 20th anniversary of Earth Day in 1990, the Santee Cooper Board of Directors passed a resolution that stated, "Protection and improvement of our environment are equal in importance to providing affordable electric energy." These bold words set the stage for the corporate mindset still being applied in earnest today.

During the past year, Investment Recovery helped enhance the corporate recycling program in order to gain better control over Santee Cooper's waste and reduce the amount of recyclables thrown in the trash. As we continue to move towards being

a "zero-waste" company, our 2010 goal is to have less than 15 percent of the waste stream consist of recyclables.

Santee Cooper also recycles heat pumps system-wide as they wear out, replacing them with more energy-efficient models. Utility line trucks, tractors and other pieces of heavy equipment needed to keep the lights on are bid out to the public when they reach the end of their utility lifespan, which is a recycling operation whether they are used elsewhere or end up as recycled materials.

Santee Cooper saves about \$80,000 a year through our efforts with pole-top hardware and street lighting alone. The items we can refurbish, we return to stock, saving money. In 2009, we saved approximately \$2.4 million through all our recycling efforts.





# Santee Cooper Regional Water System among nation’s elite

The Santee Cooper Regional Water System’s treatment plant on Lake Moultrie received a national award in 2009 for maintaining and surpassing stringent federal standards, one of only 31 water utilities nationwide to earn the honor.

The Directors Award is presented to water systems that have completed a successful review by the Partnership for Safe Water’s self assessment and peer review program. The Partnership is a national volunteer initiative developed by the Environmental Protection Agency and other organizations representing water suppliers.

The Santee Cooper system, rated at 36 million gallons per day, has maintained the Directors Award for 10 years, which has now vaulted the 15-year-old system into elite company among the nation’s water utilities. The Partnership includes

more than 200 members that serve more than 85 million people or 60 percent of the U.S. population served by surface water systems.

The Lake Moultrie plant, which ultimately serves 136,000 consumers, is the source of water distributed by four Lowcountry utilities: the Summerville Commissioners of Public Works, the City of Goose Creek Public Works Department,

the Berkeley County Water and Sanitation Authority, and the Moncks Corner Public Works Commission.

In addition to the treatment plant on Lake Moultrie, Santee Cooper operates the 8-mgd Lake Marion Regional Water System, which began commercial operation in May 2008. It currently serves the town of Santee and will expand to



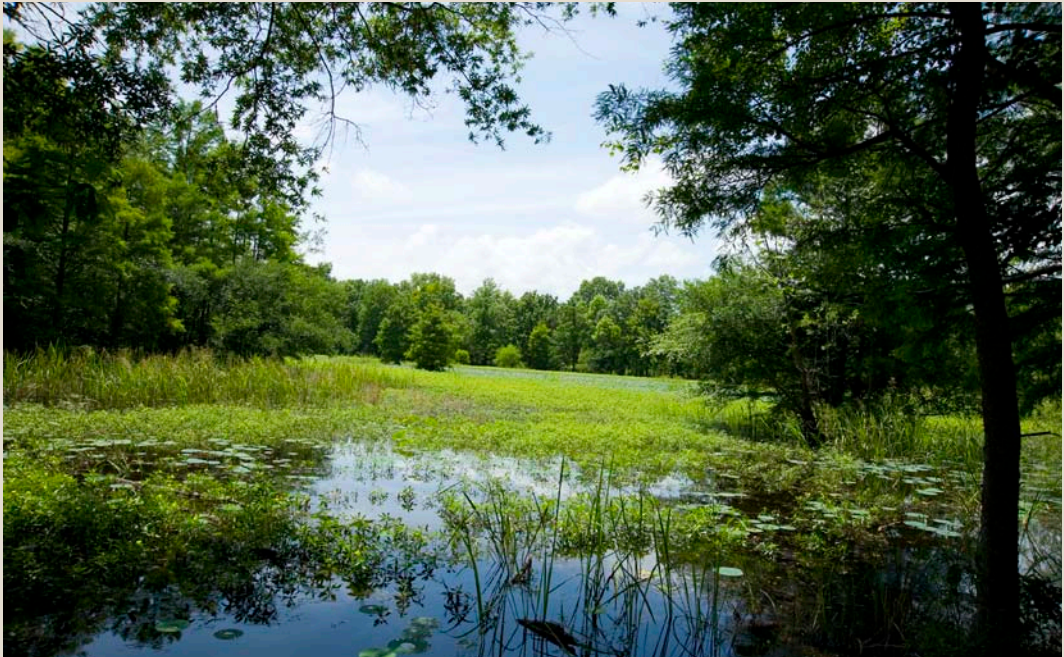
serve the remaining members of the Lake Marion Regional Water Agency, including Berkeley, Calhoun, Clarendon, Dorchester, Orangeburg and Sumter counties and the city of Manning.

# U.S. Fish and Wildlife Service “recognizes and applauds” Santee Cooper

Santee Cooper in May received the U.S. Fish and Wildlife Service’s Regional Director’s Conservation Award for its work at the Santee National Wildlife Refuge on Lake Marion.

The agency stated it “recognizes and applauds Santee Cooper” and that the award “honors those that have made ground-breaking contributions toward fish and wildlife conservation and whose efforts and dedication are freely given to the natural world.”

Santee Cooper has a long, solid history of partnership with the agency dating back to 1941, when the refuge was established during



construction of the Santee Cooper project. Foraged from necessity, reflecting history, and evolving with our national and local community growth, the partnership between the agency and Santee Cooper is today a model for stewardship of natural resource conservation and management.

For example, Santee Cooper has:

- Provided support through donations as well as

providing professional staff to support refuge wetland management projects and expand the refuge boundary

- Provided helicopter support and herbicides to treat 125 acres of invasive and exotic plants on the refuge

- Provided ground support to treat exotic and undesirable plant species



- Played an integral part in supporting the concepts of landscape conservation and refuge management

- Assisted in conservation planning and directly participated in several refuge programs including the Santee NWR Wetland Management and Enhancement Review

- Provided staff assistance as part of a steering committee for the Santee Birding and Nature Festival and provided donations for support of the birding and nature festival.

“Santee Cooper’s continued commitment to support refuge management and projects are providing healthier fish and wildlife habitats as well as enjoyment to the people that visit the refuge,” the agency further stated. “The refuge congratulates and recognizes Santee Cooper and their staff for their commitments and accomplishment in achieving meaningful results by working together with a diversity of people and disciplines to achieve a common vision for the refuge and the community around it.”

## Green for miles and miles

When the 750 employees at Santee Cooper’s Moncks Corner headquarters returned to work after the 2008 Labor Day weekend, many of them took a decidedly different route.

They rode the bus.

That was the beginning of iRide, Santee Cooper’s commuter benefits program that has established express bus routes to the Moncks Corner headquarters and Cross Generating Station, as well as facilitated carpool opportunities at all of its locations throughout South Carolina.

In 2009, 449 employees participated in the iRide program, representing 2,231,844 miles commuted and a savings of 699,037 pounds of greenhouse gases. In recognition of its continued success, the National Center for Transit Research in 2009 named Santee Cooper a Best Workplace for Commuters. The award acknowledges iRide as meeting the U.S. Environmental Protection

Agency’s National Standard of Excellence for commuter benefits.

When Santee Cooper launched iRide, the average price for a gallon of regular gasoline in South Carolina was around \$4 — the highest-ever recorded average in the state, according to AAA.

Confounding the issue was the rural location of Santee Cooper’s headquarters in Moncks Corner, about 40 miles west of Charleston. At the time, the area’s rural public transit provider, TriCounty Link, only offered traditional fixed rural routes, contract service and Medicaid transportation. Santee Cooper employees traveling to Moncks Corner every day had no alternative commuting options, and there was no organized way to enable carpooling at any of Santee Cooper’s locations.

In the summer of 2008, an exploratory committee was formed to determine if a program like iRide would be successful at Santee Cooper. From the outset, the goal was to devise a program that would provide tangible relief for the high cost of gas and demonstrate a quantifiable commitment to the environment.

Armed with a dizzying amount of supporting information, the exploratory committee recommended to executive management that Santee Cooper implement a comprehensive commuter benefits program, and iRide was born.

The most visible component to iRide is the express bus service provided by TriCounty Link, which provides express commuter routes from park-and-

ride locations throughout Berkeley, Charleston and Dorchester counties.

Residents of rural Berkeley County can also benefit from the Link commuter routes by taking advantage of new park-and-ride locations in communities like Bonneau, St. Stephen, Moncks Corner and Pineville. These routes also enable Link riders to connect with Charleston



Area Transportation Authority (CARTA) buses in North Charleston, which means a resident of Pineville could now use mass transit to travel to Charleston, some 60 miles away.

To help track the miles and emissions that iRide participants avoid, Santee Cooper purchased a software package that also enabled employees to find possible carpooling options in their neighborhoods. Santee Cooper also established parking spots reserved for carpoolers in lots close to the office buildings and generating stations, and there are other incentives the utility offers carpoolers.

To date, Santee Cooper employees at 18 locations throughout South Carolina are participating in the iRide program, which underscores the demand for a commuter benefit and also a commitment to improving the environment.





## A floating menace

In 2004, employees with Santee Cooper’s Analytical & Biological Services (ABS) unit encountered a small colony of what they thought was big floating heart in a cove in of the Eutaw Creek area of Lake Marion, near Eutawville.

Big floating heart is a native plant that belongs to a genus of aquatic flowering plants known as Nymphaeoides, which resemble a water lily and are

characterized by heart-shaped leaves that hold small flowers above the water surface.

Only this wasn’t big floating heart. It was crested floating heart, something much more troubling.

Originally from Asia, crested floating heart resembles native vegetation like big floating heart. As a non-native plant, however, it is invasive and can quickly take over a waterway.

ABS began herbicidal treatments targeting crested floating heart in 2005 but had little success. Within a year it had filled the 20-acre cove where it was first detected.

There are 160,000 surface acres on the Santee Cooper Lakes, and ABS says crested floating heart has the potential to cover as much as 40 percent of it. The invasive plant has been found rooting in high-energy areas along the main shoreline and can grow in 10 to 12 feet of water. It’s also been very resistant to herbicides.

Crested floating heart has been primarily contained to the Santee Cooper Lakes, but the S.C. Department of Natural Resources recognizes it as a potential threat to all South Carolina waterways. DNR and ABS agree the biggest threat crested floating heart poses to an aquatic ecosystem is its ability to create a monoculture, or single-crop habitat.

It can out-compete and dominate other native species and can cause complete changes to an ecosystem. Additional problems can arise from the sheer biomass of the plants, which can affect



water quality for drinking-water supplies, electric hydropower production and recreational activities such as boating, swimming, fishing and hunting.

ABS has seen some positive results from a new herbicidal mixture they began using in 2009, and it also began a public awareness campaign with DNR to educate people on the risk it poses to the Santee Cooper lakes and any aquatic ecosystem.

Grass carp stocked to control nuisance aquatic weed

As part of its ongoing initiative to control growth of invasive hydrilla, Santee Cooper in June stocked 8,500 sterile Chinese grass carp in the Santee Cooper Lakes.

Santee Cooper worked with the S.C. Department of Natural Resources and the S.C. Aquatic Plant Management Council in the grass carp restocking. Hydrilla is an invasive, non-native aquatic plant that can harm the environment and impair a variety of water-use activities. Environmental

impacts include degraded water quality and displaced native plant species.

One of the responsibilities of managing the Santee Cooper Lakes is preserving and encouraging the growth of native aquatic plants and staying on guard against unchecked growth of non-native vegetation like hydrilla. The Chinese grass carp is the most effective resource we have for maintaining control of hydrilla and promoting growth of native plants throughout Lake Moultrie and Lake Marion.

Santee Cooper’s Analytical & Biological Services (ABS) Unit has spent the better part of two decades combating the invasive hydrilla. ABS originally found hydrilla in 1982 in the Rimini area of Lake Marion. In spite of tremendous herbicide applications from 1982 through 1994, it had infested approximately 45,000 acres of the lake and was growing in depths of up to 20 feet.

Santee Cooper initiated grass carp stocking in 1989, and in 1996 finally started to see a significant system-wide reduction as the grass-carp fed on the weed. Today, hydrilla occupies only a few hundred acres of the lake system.

Fish were stocked at three locations in Lake Marion: Elliot’s Landing in Rimini, Jack’s Creek near Summerton and Spier’s Landing near Cross. Fish were stocked at three locations in Lake Moultrie: the Sandy Beach Wildlife Management Area near Russellville, Hall’s Woods Cove in Cross and The Hatchery Wildlife Management Area northwest of Moncks Corner.

Energy Educators Institute in 24th summer of Santee Cooper’s outreach

Eighty-two educators attended the 24th annual Energy Educators Institute in the summer of 2009, a graduate-credit course offered by Santee Cooper for certified kindergarten through 12th-grade teachers and administrators.

The program educates South Carolina teachers about numerous issues surrounding energy production in three four-day sessions offered every July.

Teachers benefit by bringing information back to the classroom and by the networking opportunities with fellow teachers and with Santee Cooper professionals.

The educators visit Jefferies Generating Station, the Old Santee Canal Park and industrial customer Alcoa-Mount Holly. They also hear lectures from

Santee Cooper energy experts on topics such as energy efficiency, conservation, renewable energy, environmental resources, power generation, transmission, distribution, electrical safety, water quality and utility economics.

Hands-on activities, such as the “Insulation Station,” a practical project that explores the best home insulating methods, are part of what

teachers are able to experience and then recreate back in their classrooms. Teachers receive standards-based lesson plans and learn about the challenges associated with renewable energy resources.

Schools Let the Sun Shine In

Santee Cooper’s Green Power Solar Schools program began in April 2007 with the dedication of Hilton Head Middle School. By the end of 2009 it included 17 schools, with the final schools on deck — one planned for each electric cooperative territory.

Santee Cooper dedicated three Solar Schools in 2009: Hillcrest Middle School, Diamond Hill Elementary School and Ruffin Middle School.

The Green Power Solar Schools program is funded entirely by customers of Santee Cooper and the electric cooperatives who purchase Green Power. All revenues from these sales support the schools’ solar installations as well as additional renewable







energy initiatives. the feasibility and limitations of renewable power generation.

Santee Cooper sold 24,831 MWhs of Green Power in 2009 to 6,255 customers across the state. Santee Cooper installs a 2-kW solar power system at the participating schools, which provides a teaching, research and hands-on demonstration opportunity for the sixth grade students there. The schools are also provided an Internet-based monitoring system that offers real-time access to

information about the system’s performance from any computer.

Exploring renewable energy and conservation topics are important ways to help meet the growing electricity needs in South Carolina and connect the real world to the classroom. Green Power Solar Schools are an important part of Santee Cooper’s commitment as we continue our tradition of environmental leadership. We know that working with students and challenging them to think differently about energy sources will reap benefits for future generations.

In addition to the solar panels, the schools also receive a specially designed renewable energy curriculum endorsed by the South Carolina Department of Education. The curriculum complies with sixth-grade science standards. Also included in the curriculum is a kit fully stocked with materials needed for the lab activities, including materials for a solar car.

Science teachers from Green Power Solar Schools are also given the chance to be students again at the Solar Schools kit training offered during the

summer. Teachers and members of their local electric cooperatives are able to experience the curriculum firsthand, doing the labs themselves.

# Vector Management Keeps the Bugs at Bay

Santee Cooper’s battle with mosquitoes pre-dates the first electricity ever produced by the state owned-utility. The Vector Management department was the driving force in eliminating malaria from around the Santee Cooper lakes in the early 1950s and continues its efforts to control nuisance and disease carrying mosquitoes today.

Crews perform daily inspections around the lake system to eliminate active mosquito breeding sites. Throughout the prime mosquito season of April through October, Vector Management conducts regular mosquito sprayings in four of the counties surrounding lakes Marion and Moultrie. Santee Cooper uses EPA-approved chemicals Permethrin, which is sprayed by truck, and Naled, which is delivered aerially, as well as

biological control agents containing BTI (Bacillus thuringiensis israelensis) or methoprene to target mosquito larvae. Employees who spray are licensed by the South Carolina Department of Pesticide Regulation, and Vector Management works with county agencies to prevent duplication of efforts.

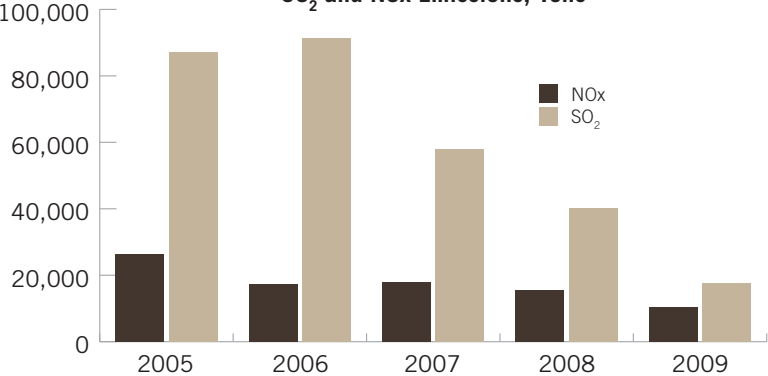
Vector management uses light traps and standardized techniques to survey adult populations to determine when spray operations

are warranted. Crews also monitor adult mosquitoes for the presence of West Nile Virus and other mosquito-borne diseases.

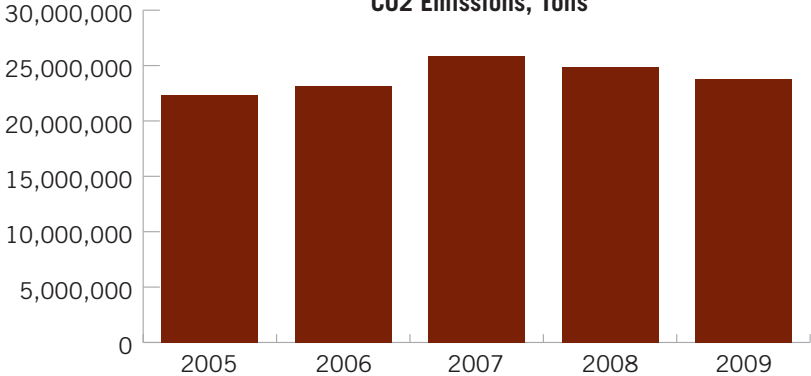


# TRANSPARENCY

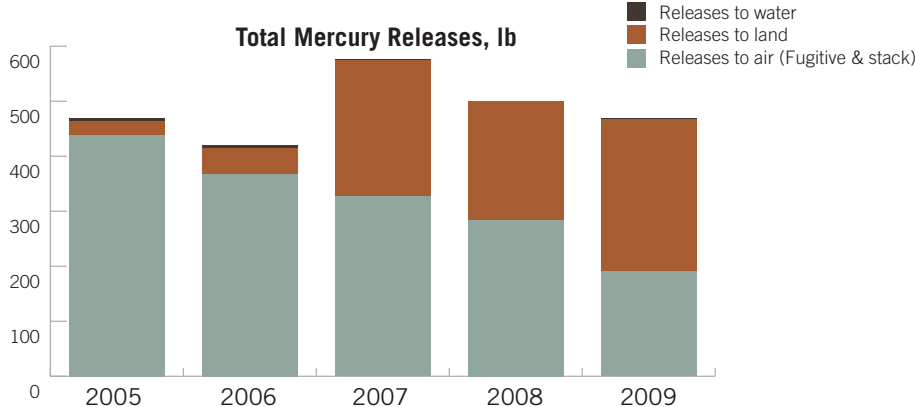
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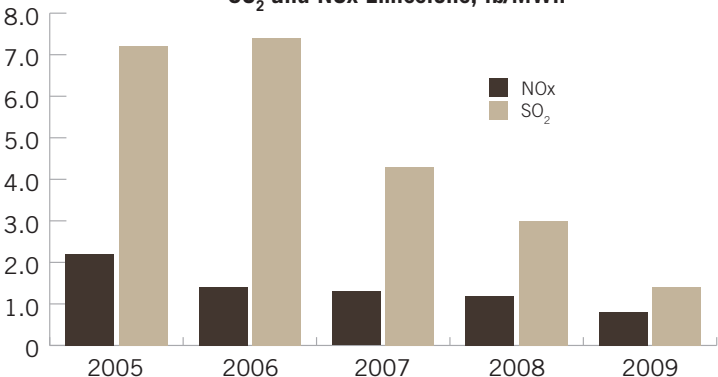
CO<sub>2</sub> Emissions, Tons



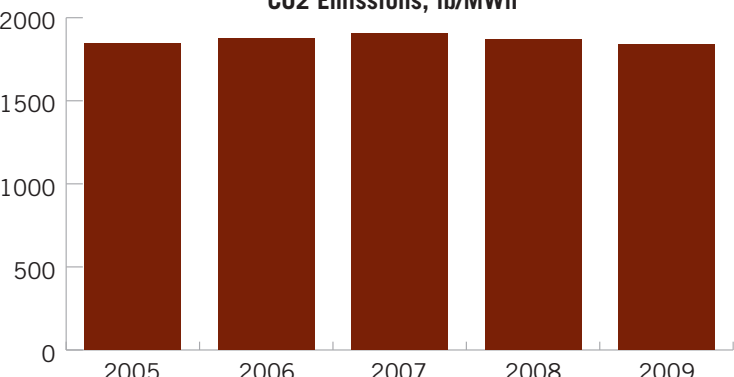
Total Mercury Releases, lb



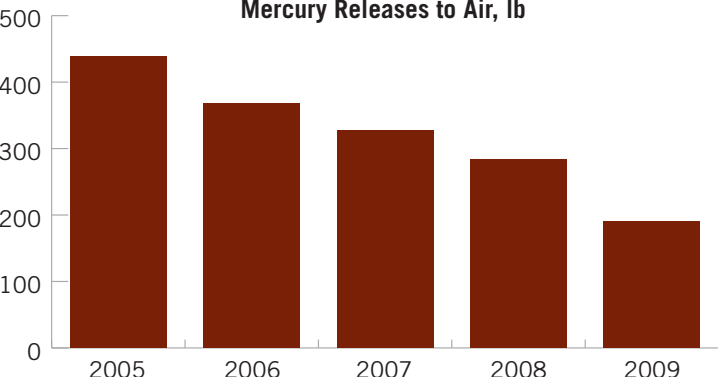
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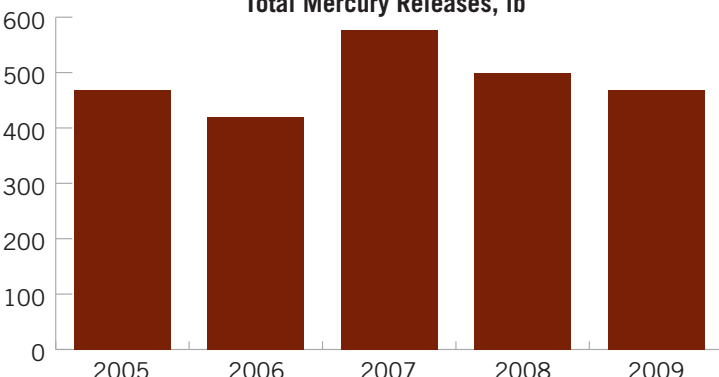
CO<sub>2</sub> Emissions, lb/MWh



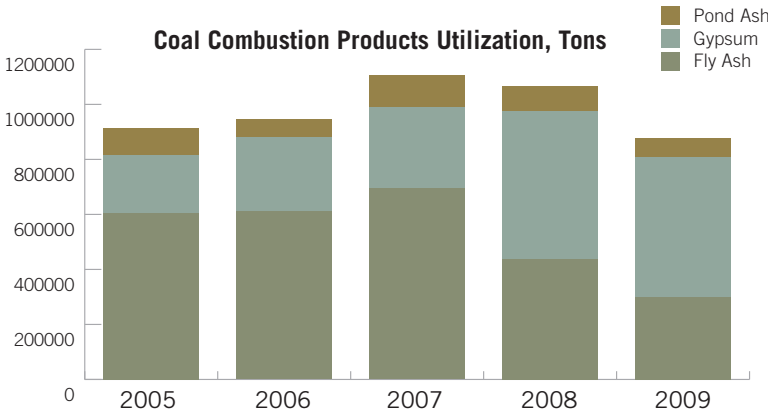
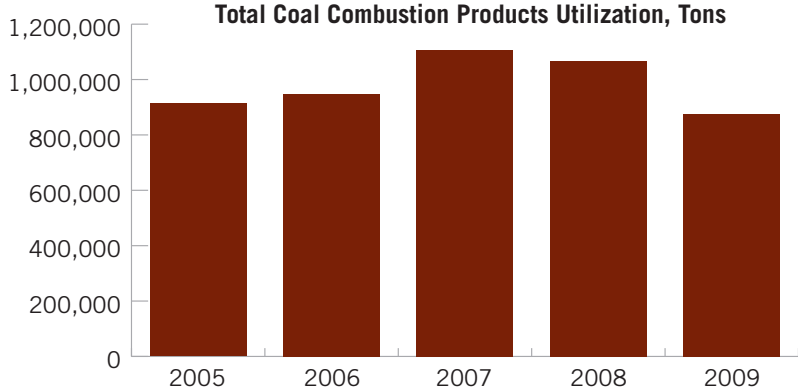
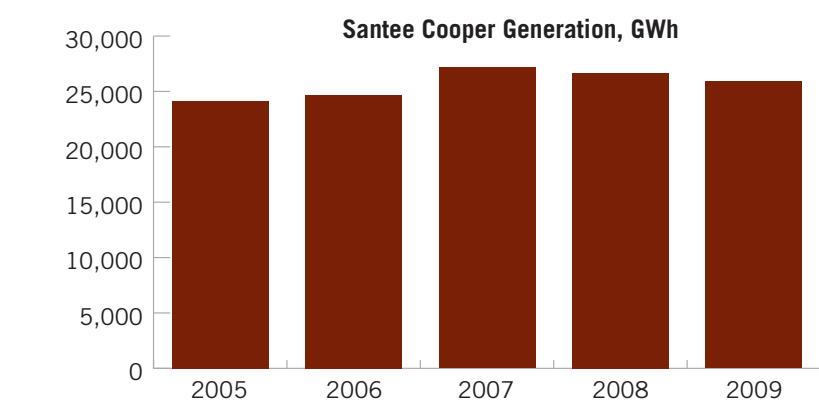
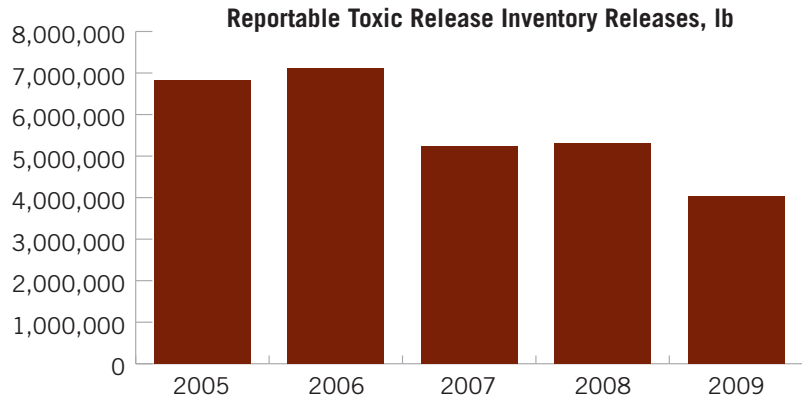
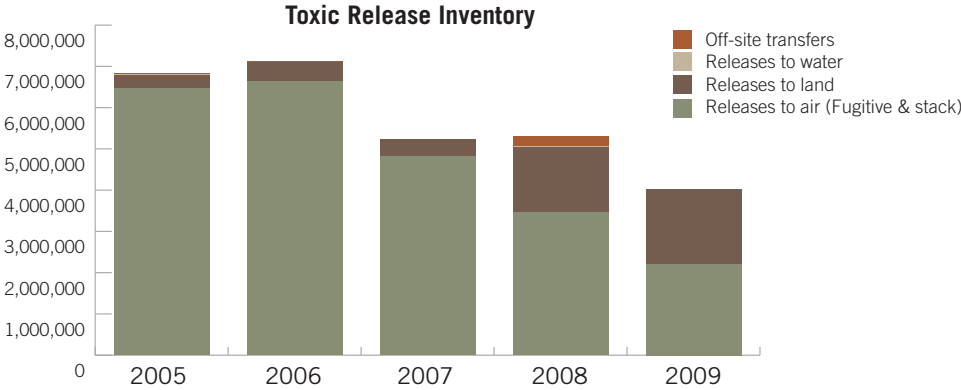
Mercury Releases to Air, lb



Total Mercury Releases, lb







# PARTNERSHIPS

- American Coal Ash Association

American Council on Renewable Energy

American Public Power Association

Belle W. Baruch Institute of Coastal Ecology  
and Forest Science

Berkeley County Kids Who Care About Our Environment

Berkeley Soil & Water Conservation District

Calhoun Soil & Water Conservation District

Carolina Recycling Association

Carolinas Air Pollution Control Association

Center for Hydrogen Research

Charleston Chamber of Commerce  
Innovation/Alternative Energy Summit

Charleston Metro Chamber of Commerce –  
Environmental Committee

Charleston Soil & Water Conservation District

City of Myrtle Beach Green Keepers
- Clarendon County Chamber/Striped Bass Festival

Clarendon Soil & Water Conservation District

Clemson University Institute for Energy Studies

Coal Ash Consortium

Coastal Carolina University Burroughs & Chapin Center for  
Marine and Wetland Studies

Clarendon County Chamber Fishing Tournaments

EPA Coal Combustion Products Partnership

EPA Landfill Methane Outreach Program

Friends of Santee National Wildlife Refuge

Georgetown Soil & Water Conservation District

Horry Soil & Water Conservation District

Large Public Power Council – Environmental Task Force

Lord Berkeley Conservation Trust

National Wild Turkey Federation

Palmetto Conservation Foundation

Pee Dee River Coalition

- POWER for Wildlife

Robert M. Cooper 4-H Leadership Center

Santee Birding and Nature Festival

Savannah River National Laboratory

South Carolina Chamber – Environmental Technical  
Committee

South Carolina Aquarium/Conservation Awards

South Carolina Aquatic Invasive Species Task Force

South Carolina Environmental Excellence Program

South Carolina Forestry Association

South Carolina Sea Grant Consortium

South Carolina Sea Grant Consortium Extension Program

South Carolina Striped Bass Stakeholders Working Group

South Carolina Timber Producers Association

Southeast Regional Carbon Sequestration Partnership

St. Stephen Catfish Festival

The Big Green Bus Tour (Trident United Way)

The Climate Registry – Voluntary Greenhouse Gas Reporting

U.S. Green Building Council

Wildlife Action, Inc.

Santee Cooper Country



# ENVIRONMENTAL POLICY

THE MISSION OF SANTEE COOPER IS TO BE THE STATE’S LEADING RESOURCE FOR IMPROVING THE QUALITY OF LIFE FOR THE PEOPLE OF SOUTH CAROLINA. TO FULFILL THIS MISSION, SANTEE COOPER IS FIRMLY COMMITTED TO BEING A STEWARD OF THE ENVIRONMENT. AS SUCH, SANTEE COOPER HAS DEVELOPED THE FOLLOWING ENVIRONMENTAL POLICY STATEMENT:

Santee Cooper is committed to:  
Compliance with all applicable federal, state and local environmental statutes, regulations, enforceable agreements, and permits, and

Continual improvement in environmental performance, through

- 1. **proactively seeking ways to enhance compliance,**
- 2. **promoting conservation and renewable energy initiatives,**
- 3. **minimizing environmental risks,**
- 4. **promoting pollution prevention, and**
- 5. **dedicating personnel, equipment, training, and materials for the comprehensive Environmental Management System.**

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**Editor** Kevin F. Langston

**Photo Editor/Photographer** Jim Huff

**Art Director** Tom Galmarini

**Contributors** Mollie Gore, Morgan Bradham Howard, Willard Strong

## For more information, contact

**Publications Director** Mollie Gore

P.O. Box 2946101

Moncks Corner, SC 29461-2901

Phone: 843-761-7093

Fax: 843-761-7060

mollie.gore@santeecooper.com

www.SanteeCooperGreen.com

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